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**United States Patent** [19]

Turner

[11] Patent Number: **5,227,628**[45] Date of Patent: **Jul. 13, 1993**[54] **ION MOBILITY DETECTOR**[75] Inventor: **Brian R. Turner**, Chesham, United Kingdom[73] Assignee: **Graseby Dynamics Limited**, Cambridge, England[21] Appl. No.: **741,472**[22] PCT Filed: **Feb. 7, 1990**[86] PCT No.: **PCT/GB90/00182**§ 371 Date: **Aug. 5, 1991**§ 102(e) Date: **Aug. 5, 1991**[87] PCT Pub. No.: **WO90/09583**PCT Pub. Date: **Aug. 23, 1990**[30] **Foreign Application Priority Data**

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## [56]

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## [57]

**ABSTRACT**

There is disclosed an ion mobility detector having a sample inlet membrane means for flowing a sample passing through the membrane over an ionisation source to an ion reaction region, with which two or more ion drift regions communicate, means for impressing a potential gradient on each drift region, an ion injection shutter at the entrance to each drift region whereby the drift region can be made accessible or inaccessible to ions of a particular sign located in the reaction region, an ion detector in each drift region, means for passing drift gas down each drift region to the reaction region and exit means in the reaction region remote from the ionisation source for venting drift gas from the reaction region, the ionisation source (26) being offset from the reaction region (27).

**8 Claims, 3 Drawing Sheets**